

an alkali metal to form a silicon ceramic.

51. (new) A process for fabricating a silicon carbide containing ceramic or ceramic composite for use in making diesel particulate filters using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to silicon carbide ceramic according to claim 50.

52. (new) A process for fabricating a silicon carbide containing ceramic or ceramic composite which is microwave susceptible using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to silicon carbide ceramic according to claim 50.

53. (new) A process for fabricating a microwave susceptible silicon carbide containing ceramic or ceramic composite for use in making regenerative diesel particulate filters using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to silicon carbide ceramic according to claim 50.

54. (new) A process for fabricating a silicon carbide containing ceramic or ceramic composite for use in making regenerative diesel particulate filters composed of matted ceramic fibrils shaped in a corrugated cylindrical geometry using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to silicon carbide ceramic according to claim 50.

55. (new) A process for fabricating a silicon carbide

containing ceramic or ceramic composite for use in making regenerative diesel particulate filters composed of matted ceramic fibrils shaped in a corrugated conical geometry using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to silicon carbide ceramic according to claim 50.

56. (new) A process for fabricating a microwave susceptible silicon carbide containing ceramic or ceramic composite for use in making radiant burners, thermal oxidizers of volatile organic compounds, filters and automotive catalytic converters using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to silicon carbide ceramic according to claim 50.

57. (new) A process of forming a photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to boron carbide ceramic comprising the steps of:

- a. reacting sodium acetylide with organo-chlorosilanes; and
- b. polymerizing the resultant organo-(ethynyl)chlorosilane product of step a with an excess of an alkali metal.

58. (new) A process for fabricating a boron carbide containing ceramic or ceramic composite for use in making diesel particulate filters using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to boron carbide ceramic according to claim 57.

59. (new) A process for fabricating a boron carbide containing ceramic or ceramic composite which is microwave susceptible using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to boron carbide ceramic according to claim 57.

60. (new) A process for fabricating a microwave susceptible silicon carbide containing ceramic or ceramic composite for use in making regenerative diesel particulate filters using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to boron carbide ceramic according to claim 57.

61. (new) A process for fabricating a boron carbide containing ceramic or ceramic composite for use in making regenerative diesel particulate filters composed of matted ceramic fibrils shaped in a corrugated cylindrical geometry using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to boron carbide ceramic according to claim 57.

62. (new) A process for fabricating a boron carbide containing ceramic or ceramic composite for use in making regenerative diesel particulate filters composed of matted ceramic fibrils shaped in a corrugated conical geometry using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to boron carbide ceramic according to claim 57.

63. (new) A process for fabricating a microwave susceptible boron carbide containing ceramic or ceramic composite for

use in making radiant burners, thermal oxidizers of volatile organic compounds, filters and automotive catalytic converters using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to boron carbide ceramic according to claim 57.

64. (new) A process of forming a photo-curable pre-ceramic polymer, a lithium aluminosilicate poly(ethynyl)-carbosilane to boron carbide ceramic comprising the steps of:

- a. reacting sodium acetylide with organo-chlorosilanes; and
- b. polymerizing the resultant organo-(ethynyl)chlorosilane product of step a with an excess of an alkali metal.

65. (new) A process for fabricating a boron carbide containing ceramic or ceramic composite for use in making diesel particulate filters using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to boron carbide ceramic according to claim 57.

66. (new) A process for fabricating a boron carbide containing ceramic or ceramic composite which is microwave susceptible using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to boron carbide ceramic according to claim 57.

67. (new) A process for fabricating a microwave susceptible silicon carbide containing ceramic or ceramic composite for use in making regenerative diesel particulate filters using

photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to boron carbide ceramic according to claim 57.

68. (new) A process for fabricating a boron carbide containing ceramic or ceramic composite for use in making regenerative diesel particulate filters composed of matted ceramic fibrils shaped in a corrugated cylindrical geometry using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to boron carbide ceramic according to claim 57.

69. (new) A process for fabricating a boron carbide containing ceramic or ceramic composite for use in making regenerative diesel particulate filters composed of matted ceramic fibrils shaped in a corrugated conical geometry using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to boron carbide ceramic according to claim 57.

70. (new) A process for fabricating a microwave susceptible boron carbide containing ceramic or ceramic composite for use in making radiant burners, thermal oxidizers of volatile organic compounds, filters and automotive catalytic converters using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to boron carbide ceramic according to claim 57.

71. (new) A process of forming a photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to silicon nitride ceramic comprising the steps of:

- a. reacting sodium acetylide with organo-chlorosilanes; and
- b. polymerizing the resultant organo-(ethynyl)chlorosilane product of step a with an excess of an alkali metal.

72. (new) A process for fabricating a silicon carbide containing ceramic or ceramic composite for use in making diesel particulate filters using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to silicon carbide ceramic according to claim 71.

73. (new) A process for fabricating a silicon carbide containing ceramic or ceramic composite which is microwave susceptible using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to silicon carbide ceramic according to claim 71.

74. (new) A process for fabricating a microwave susceptible silicon carbide containing ceramic or ceramic composite for use in making regenerative diesel particulate filters using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to silicon carbide ceramic according to claim 50.

75. (new) A process for fabricating a silicon carbide containing ceramic or ceramic composite for use in making regenerative diesel particulate filters composed of matted ceramic fibrils shaped in a corrugated cylindrical geometry using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to silicon carbide ceramic according to claim

50.

76. (new) A process for fabricating a silicon carbide containing ceramic or ceramic composite for use in making regenerative diesel particulate filters composed of matted ceramic fibrils shaped in a corrugated conical geometry using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to silicon carbide ceramic according to claim

50.

77. (new) A process for fabricating a microwave susceptible silicon nitride containing ceramic or ceramic composite for use in making radiant burners, thermal oxidizers of volatile organic compounds, filters and automotive catalytic converters using photo-curable pre-ceramic polymer, poly(ethynyl)-carbosilane to silicon carbide ceramic according to claim 50.

78. (new) A process comprising the step of using a photocurable preceramic polymer for fabricating a silicon carbide containing ceramic or ceramic composite for use in making diesel particulate

79. (new) A process for fabricating a silicon carbide containing ceramic or ceramic composite which is microwave susceptible using said photo-curable pre-ceramic polymer according to claim 78.

80. (new) A process for fabricating a microwave susceptible

silicon carbide containing ceramic or ceramic composite for use in making regenerative diesel particulate filters using said photo-curable pre-ceramic polymer according to claim 78.

81. (new) A process for fabricating a silicon carbide containing ceramic or ceramic composite for use in making regenerative diesel particulate filters composed of matted ceramic fibrils shaped in a corrugated cylindrical geometry using said photo-curable pre-ceramic polymer according to claim 78.

82. (new) A process for fabricating a silicon carbide containing ceramic or ceramic composite for use in making regenerative diesel particulate filters composed of matted ceramic fibrils shaped in a corrugated conical geometry using said photo-curable pre-ceramic polymer according to claim 78.

83. (new) A process for fabricating a microwave susceptible silicon carbide containing ceramic or ceramic composite for use in making radiant burners, thermal oxidizers of volatile organic compounds, filters and automotive catalytic converters using said photo-curable pre-ceramic polymer according to claim 78.

84. (new) A process comprising the step of using a photo-curable pre-ceramic polymer for fabricating a boron carbide



containing ceramic or ceramic composite for use in making diesel particulate.

85. (new) A process for fabricating a boron carbide containing ceramic or ceramic composite which is microwave susceptible using said photo-curable pre-ceramic polymer according to claim 84.

86. (new) A process for fabricating a microwave susceptible boron carbide containing ceramic or ceramic composite for use in making regenerative diesel particulate filters using said photocurable preceramic polymer according to claim 84.

87. (new) A process for fabricating a boron carbide containing ceramic or ceramic composite for use in making regenerative diesel particulate filters composed of matted ceramic fibrils shaped in a corrugated cylindrical geometry using said photo-curable pre-ceramic polymer according to claim 84.

88. (new) A process for fabricating a boron carbide containing ceramic or ceramic composite for use in making regenerative diesel particulate filters composed of matted ceramic fibrils shaped in a corrugated conical geometry using said photo-curable pre-ceramic polymer according to claim 84.

89. (new) A process for fabricating a microwave susceptible boron carbide containing ceramic or ceramic composite for

use in making radiant burners, thermal oxidizers of volatile organic compounds, filters and automotive catalytic converters using said photo-curable pre-ceramic polymer according to claim 84.

90. (new) A process comprising the step of using a photo-curable pre-ceramic polymer for fabricating a lithium alumino-silicate containing ceramic or ceramic composite for use in making diesel particulate.

91. (new) A process for fabricating a lithium alumino-silicate containing ceramic or ceramic composite which is microwave susceptible using said photo-curable pre-ceramic polymer according to claim 90.

92. (new) A process for fabricating a microwave susceptible lithium alumino-silicate containing ceramic or ceramic composite for use in making regenerative diesel particulate filters using said photo-curable pre-ceramic polymer according to claim 90.

93. (new) A process for fabricating a lithium alumino-silicate containing ceramic or ceramic composite for use in making regenerative diesel particulate filters composed of matted ceramic fibrils shaped in a corrugated cylindrical geometry using said photo-curable pre-ceramic polymer according to claim 90.

94. (new) A process for fabricating a lithium alumino-

silicate containing ceramic or ceramic composite for use in making regenerative diesel particulate filters composed of matted ceramic fibrils shaped in a corrugated conical geometry using said photo-curable pre-ceramic polymer according to claim 90.

95. (new) A process for fabricating a microwave susceptible lithium alumino-silicate containing ceramic or ceramic composite for use in making radiant burners, thermal oxidizers of volatile organic compounds, filters and automotive catalytic converters using said photo-curable pre-ceramic polymer according to claim 90.

96. (new) A process comprising the step of using a photo-curable pre-ceramic polymer for fabricating a silicon nitride containing ceramic or ceramic composite for use in making diesel particulate.

97. (new) A process for fabricating a silicon nitride containing ceramic or ceramic composite which is microwave susceptible using said photo-curable pre-ceramic polymer according to claim 96.

98. (new) A process for fabricating a microwave susceptible silicon nitride containing ceramic or ceramic composite for use in making regenerative diesel particulate filters using said photo-curable pre-ceramic polymer according to claim 96.

99. (new) A process for fabricating a silicon nitride containing ceramic or ceramic composite for use in making regenerative diesel particulate filters composed of matted ceramic fibrils shaped in a corrugated cylindrical geometry using said photo-curable pre-ceramic polymer according to claim 96.

100. (new) A process for fabricating a silicon nitride containing ceramic or ceramic composite for use in making regenerative diesel particulate filters composed of matted ceramic fibrils shaped in a corrugated conical geometry using said photo-curable pre-ceramic polymer according to claim 96.

101. (new) A process for fabricating a microwave susceptible silicon nitride containing ceramic or ceramic composite for use in making radiant burners, thermal oxidizers of volatile organic compounds, filters and automotive catalytic converters using said photo-curable pre-ceramic polymer according to claim 96.

102. (new) A method for making high temperature filter media comprising melt-spinning a plurality of fibers of pre-ceramic thermoplastic polymer to form a non-woven textile web of said fibers, curing and cross-linking said thermoplastic polymer to a thermo-set polymer, and thermally decomposing said thermo-set polymer to ceramic.

103. (new) A high temperature filter media comprising a non-woven textile web of a plurality of fibers of bonded melt-spun pre-ceramic thermoplastic polymer cured to a cross-linked thermo-set polymer and thermally decomposed to ceramic.